



# SmartStix™ HE559DIM610/HE559DIM710

Remote I/O for the OCS/RCS Family

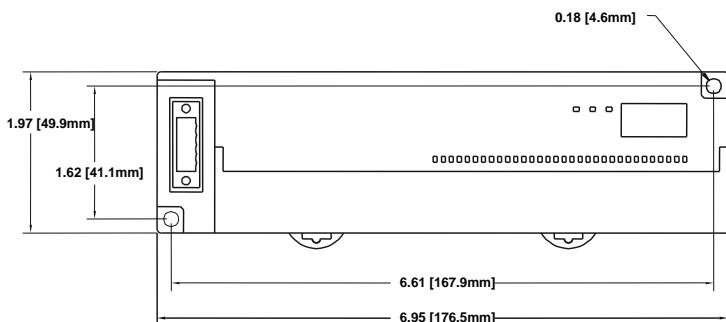
16 DC Inputs (24VDC, positive/negative logic) / 32 DC Inputs (24VDC, positive/negative logic)

## 1 GENERAL SPECIFICATIONS

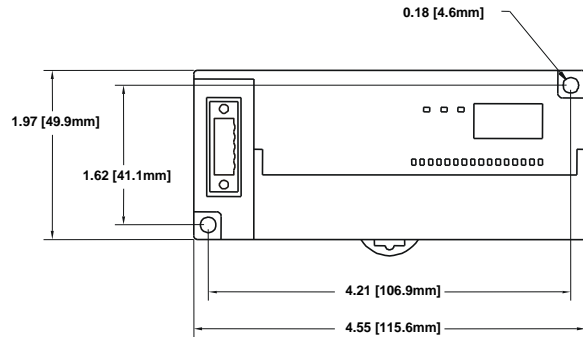
| General Specifications         |  |                                |                                      |   |
|--------------------------------|--|--------------------------------|--------------------------------------|---|
| Storage Temperature            | -25° to 70° C  | Operating and Storage Humidity | 5 to 95% Non-condensing              |   |
| Operating Temperature          | 0° to 55° C  | Pollution degree               | 2 or lower                           |   |
| Atmosphere                     | Free from corrosive gases and excessive dust                 | Cooling method                 | Self-cooling                         |   |
| Vibration                      |  |                                |                                      |   |
| Occasional Vibration           |  |                                |                                      |   |
| Frequency                      | Acceleration   | Amplitude                      | Sweep Count                          |   |
| 10 ≤ f < 57 Hz                 | -  | 0.075 mm                       | 10 times in each direction for X,Y,Z |   |
| 57 ≤ f ≤ 150 Hz                | 9.8 m/s <sup>2</sup> {1G}                                    | -                              |                                      |   |
| Continuous Vibration           |  |                                |                                      |   |
| Frequency                      | Acceleration   | Amplitude                      | Sweep Count                          |   |
| 10 ≤ f < 57 Hz                 | -  | 0.035 mm                       | 10 times in each direction for X,Y,Z |   |
| 57 ≤ f ≤ 150 Hz                | 4.9 m/s <sup>2</sup> {0.5G}                                  | -                              |                                      |   |
| Shocks                         |  |                                |                                      |   |
| Maximum shock acceleration     | 147 m/s <sup>2</sup> {15G}                                   |                                |                                      |   |
| Duration Time                  | 11 ms.   |                                |                                      |   |
| Pulse Wave                     | Half sine wave pulse (3 times in each of X, Y, Z directions) |                                |                                      |   |
| Noise Immunity                 |  |                                |                                      |   |
| Square wave impulse noise      | AC: ± 1,500VDC<br>DC: ± 900VDC                               |                                |                                      |   |
| Electrostatic Discharge        | Voltage: 4kV (contact discharge)                             |                                |                                      |   |
| Radiated electromagnetic field | 27 – 500MHz, 10V/m   |                                |                                      |   |
| Fast Transient Burst Noise     | Severity level   | All power modules              | Digital I/Os (Ue ≥ 24V)              | Digital I/Os (Ue < 24 V)<br>Analog I/Os<br>Communication I/Os |
|                                | Voltage  | 2 kV                           | 1 kV                                 | 0.25 kV   |

## 2 DIMENSIONS

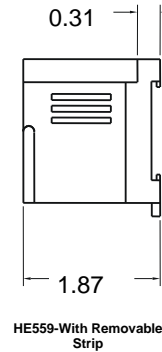
### a. DIM710



### b. DIM610



### c. Terminal Strips



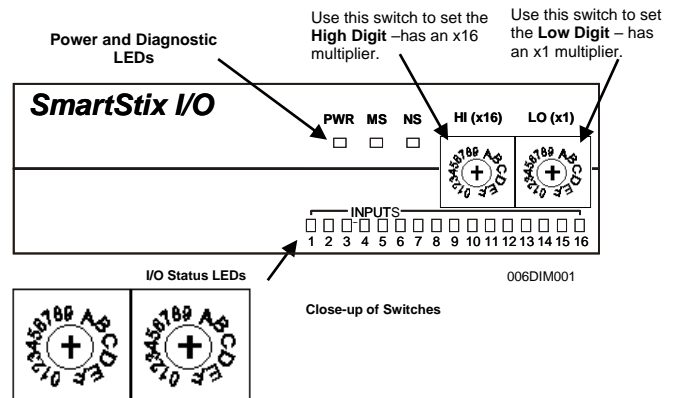
## 3 NETWORK CABLE

For detailed wiring information, refer to the Control Station Hardware Manual. A handy checklist is provided that covers panel box layout requirements and minimum clearances. See Section 10 for our web address.

| Color | Pin | Description   | Recommended Cable                            |
|-------|-----|---------------|--|
| RED   | 1   | V+            | Thick: (Max Distance = 500m)<br>Belden 3082A |
| WHT   | 2   | CAN_H         |  |
| NC    | 3   | No Connection | Thin: (Max Distance = 100m)<br>Belden 3084A  |
| BLU   | 4   | CAN_L         |  |
| BLK   | 5   | V-            |  |

## 4 ID SWITCHES (SETTING CSCAN NETWORK IDs)

CsCAN Network IDs are set using the hexadecimal number system from 01 to FD. The decimal equivalent is 1-253. Refer to Section 8, which shows the decimal equivalent of hexadecimal numbers. Set a unique Network ID by inserting a small Phillips screwdriver into the two identical switches. **Note:** The CsCAN Baud Rate for SmartStix I/O is fixed at 125KBaud



5 LEDs

a. Diagnostic LED Indicators

| Diagnostic LED                          | State          | Meaning                                    |
|---|----------------|--|
| MS: (indicates fault status of Module)  | Solid Red      | RAM or ROM test failed                     |
|   | Blinking Red   | I/O test failed                            |
|   | Blinking Green | Module is in power-up state                |
|   | Solid Green    | Module is running normally                 |
| NS: (indicates fault status of Network) | Solid Red      | Network Ack or Dup ID test failed          |
|   | Blinking Red   | Network ID test failed                     |
|   | Blinking Green | Module is in Life Expectancy default state |
|   | Solid Green    | Network is running normally                |

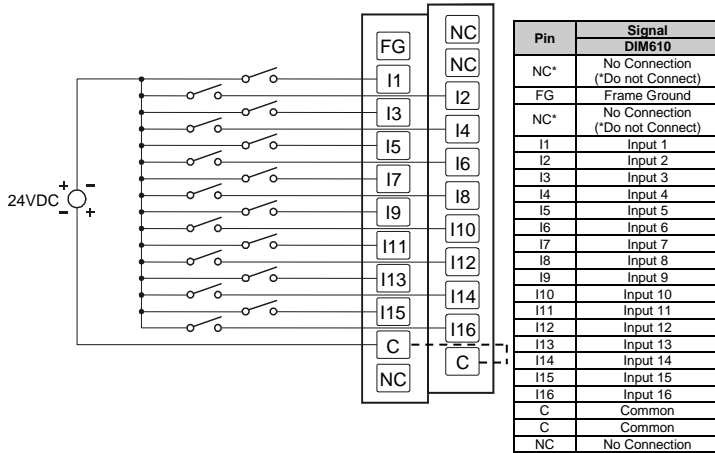
b. Status LED Indicators

The Power Status LED illuminates Red when power is applied to the module. There are I/O Status LED indicators for each of the Digital I/O points, which illuminate Red when an I/O point is ON.

6 WIRING

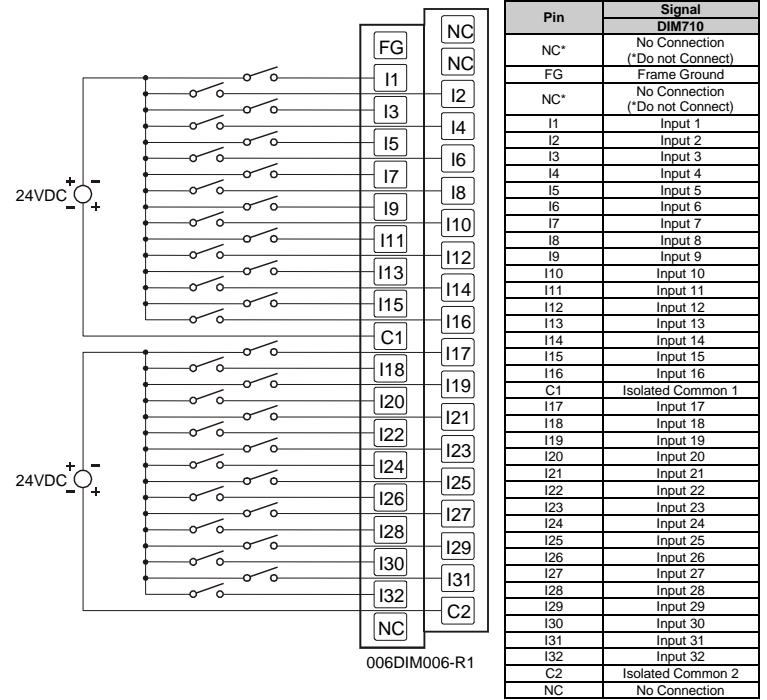
a. 16 DC IN, Positive Logic / Negative Logic

| DIM610 Specifications           |                 |                      |  |
|---------------------------------|-----------------|----------------------|--|
| Number of input points          | 16              | OFF to ON Response   | 0 - 3ms. or less                         |
| Rated Input Current             | 7mA             | ON to OFF Response   | 0 - 3ms. or less                         |
| ON Voltage Level                | 19VDC or higher | Common Terminal      | 16 points / COM                          |
| OFF Voltage Level               | 6VDC or less    | Operating Indicator  | LED turns on during ON state of input    |
| Input Characteristics           | Bidirectional   | External Connections | Terminal block connector (M3 x 6 screws) |
| Isolation Method                | Photo Coupler   | Altitude for use     | Up to 2,000m                             |
| Rated Voltage                   | 11 – 25 VDC     | Weight               | 5.6 oz. (159 g)                          |
| Internal power Consumption (mA) | 200mA           |                      |  |



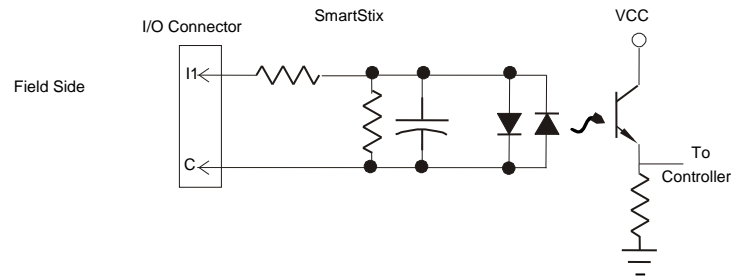
b. 32VDC IN, Positive Logic / Negative Logic

| DIM710 INPUTS                   |                 |                      |  |
|---------------------------------|-----------------|----------------------|--|
| Number of input points          | 32              | OFF to ON Response   | 0 - 3ms. or less                         |
| Rated Input Current             | 7mA             | ON to OFF Response   | 0 - 3ms. or less                         |
| ON Voltage Level                | 19VDC or higher | Common Terminal      | 16 points / COM                          |
| OFF Voltage Level               | 6VDC or less    | Operating Indicator  | LED turns on during ON state of input    |
| Isolation Method                | Photo Coupler   | External Connections | Terminal block connector (M3 x 6 screws) |
| Input Characteristics           | Bidirectional   | Weight               | 8.36oz. (237 g)                          |
| Rated Voltage                   | 11 – 25 VDC     |                      |  |
| Internal power Consumption (mA) | 300             |                      |  |

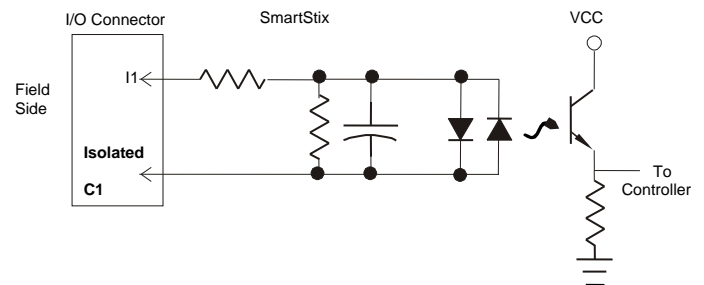


7 INTERNAL WIRING

a. DIM610



b. DIM710



8 DECIMAL (DEC) TO HEXADECIMAL (HEX) CONVERSION TABLE

| Dec | Hex |    | Dec | Hex |    | Dec | Hex |    |
|-----|-----|----|-----|-----|----|-----|-----|----|
|     | HI  | LO |     | HI  | LO |     | HI  | LO |
| 0   | 0   | 0  | 86  | 5   | 6  | 172 | A   | C  |
| 1   | 0   | 1  | 87  | 5   | 7  | 173 | A   | D  |
| 2   | 0   | 2  | 88  | 5   | 8  | 174 | A   | E  |
| 3   | 0   | 3  | 89  | 5   | 9  | 175 | A   | F  |
| 4   | 0   | 4  | 90  | 5   | A  | 176 | B   | 0  |
| 5   | 0   | 5  | 91  | 5   | B  | 177 | B   | 1  |
| 6   | 0   | 6  | 92  | 5   | C  | 178 | B   | 2  |
| 7   | 0   | 7  | 93  | 5   | D  | 179 | B   | 3  |
| 8   | 0   | 8  | 94  | 5   | E  | 180 | B   | 4  |
| 9   | 0   | 9  | 95  | 5   | F  | 181 | B   | 5  |
| 10  | 0   | A  | 96  | 6   | 0  | 182 | B   | 6  |
| 11  | 0   | B  | 97  | 6   | 1  | 183 | B   | 7  |
| 12  | 0   | C  | 98  | 6   | 2  | 184 | B   | 8  |
| 13  | 0   | D  | 99  | 6   | 3  | 185 | B   | 9  |
| 14  | 0   | E  | 100 | 6   | 4  | 186 | B   | A  |
| 15  | 0   | F  | 101 | 6   | 5  | 187 | B   | B  |
| 16  | 1   | 0  | 102 | 6   | 6  | 188 | B   | C  |
| 17  | 1   | 1  | 103 | 6   | 7  | 189 | B   | D  |
| 18  | 1   | 2  | 104 | 6   | 8  | 190 | B   | E  |
| 19  | 1   | 3  | 105 | 6   | 9  | 191 | B   | F  |
| 20  | 1   | 4  | 106 | 6   | A  | 192 | C   | 0  |
| 21  | 1   | 5  | 107 | 6   | B  | 193 | C   | 1  |
| 22  | 1   | 6  | 108 | 6   | C  | 194 | C   | 2  |
| 23  | 1   | 7  | 109 | 6   | D  | 195 | C   | 3  |
| 24  | 1   | 8  | 110 | 6   | E  | 196 | C   | 4  |
| 25  | 1   | 9  | 111 | 6   | F  | 197 | C   | 5  |
| 26  | 1   | A  | 112 | 7   | 0  | 198 | C   | 6  |
| 27  | 1   | B  | 113 | 7   | 1  | 199 | C   | 7  |
| 28  | 1   | C  | 114 | 7   | 2  | 200 | C   | 8  |
| 29  | 1   | D  | 115 | 7   | 3  | 201 | C   | 9  |
| 30  | 1   | E  | 116 | 7   | 4  | 202 | C   | A  |
| 31  | 1   | F  | 117 | 7   | 5  | 203 | C   | B  |
| 32  | 2   | 0  | 118 | 7   | 6  | 204 | C   | C  |
| 33  | 2   | 1  | 119 | 7   | 7  | 205 | C   | D  |
| 34  | 2   | 2  | 120 | 7   | 8  | 206 | C   | E  |
| 35  | 2   | 3  | 121 | 7   | 9  | 207 | C   | F  |
| 36  | 2   | 4  | 122 | 7   | A  | 208 | D   | 0  |
| 37  | 2   | 5  | 123 | 7   | B  | 209 | D   | 1  |
| 38  | 2   | 6  | 124 | 7   | C  | 210 | D   | 2  |
| 39  | 2   | 7  | 125 | 7   | D  | 211 | D   | 3  |
| 40  | 2   | 8  | 126 | 7   | E  | 212 | D   | 4  |
| 41  | 2   | 9  | 127 | 7   | F  | 213 | D   | 5  |
| 42  | 2   | A  | 128 | 8   | 0  | 214 | D   | 6  |
| 43  | 2   | B  | 129 | 8   | 1  | 215 | D   | 7  |
| 44  | 2   | C  | 130 | 8   | 2  | 216 | D   | 8  |
| 45  | 2   | D  | 131 | 8   | 3  | 217 | D   | 9  |
| 46  | 2   | E  | 132 | 8   | 4  | 218 | D   | A  |
| 47  | 2   | F  | 133 | 8   | 5  | 219 | D   | B  |
| 48  | 3   | 0  | 134 | 8   | 6  | 220 | D   | C  |
| 49  | 3   | 1  | 135 | 8   | 7  | 221 | D   | D  |
| 50  | 3   | 2  | 136 | 8   | 8  | 222 | D   | E  |
| 51  | 3   | 3  | 137 | 8   | 9  | 223 | D   | F  |
| 52  | 3   | 4  | 138 | 8   | A  | 224 | E   | 0  |
| 53  | 3   | 5  | 139 | 8   | B  | 225 | E   | 1  |
| 54  | 3   | 6  | 140 | 8   | C  | 226 | E   | 2  |
| 55  | 3   | 7  | 141 | 8   | D  | 227 | E   | 3  |
| 56  | 3   | 8  | 142 | 8   | E  | 228 | E   | 4  |
| 57  | 3   | 9  | 143 | 8   | F  | 229 | E   | 5  |
| 58  | 3   | A  | 144 | 9   | 0  | 230 | E   | 6  |
| 59  | 3   | B  | 145 | 9   | 1  | 231 | E   | 7  |
| 60  | 3   | C  | 146 | 9   | 2  | 232 | E   | 8  |
| 61  | 3   | D  | 147 | 9   | 3  | 233 | E   | 9  |
| 62  | 3   | E  | 148 | 9   | 4  | 234 | E   | A  |
| 63  | 3   | F  | 149 | 9   | 5  | 235 | E   | B  |
| 64  | 4   | 0  | 150 | 9   | 6  | 236 | E   | C  |
| 65  | 4   | 1  | 151 | 9   | 7  | 237 | E   | D  |
| 66  | 4   | 2  | 152 | 9   | 8  | 238 | E   | E  |
| 67  | 4   | 3  | 153 | 9   | 9  | 239 | E   | F  |
| 68  | 4   | 4  | 154 | 9   | A  | 240 | F   | 0  |
| 69  | 4   | 5  | 155 | 9   | B  | 241 | F   | 1  |
| 70  | 4   | 6  | 156 | 9   | C  | 242 | F   | 2  |
| 71  | 4   | 7  | 157 | 9   | D  | 243 | F   | 3  |
| 72  | 4   | 8  | 158 | 9   | E  | 244 | F   | 4  |
| 73  | 4   | 9  | 159 | 9   | F  | 245 | F   | 5  |
| 74  | 4   | A  | 160 | A   | 0  | 246 | F   | 6  |
| 75  | 4   | B  | 161 | A   | 1  | 247 | F   | 7  |
| 76  | 4   | C  | 162 | A   | 2  | 248 | F   | 8  |
| 77  | 4   | D  | 163 | A   | 3  | 249 | F   | 9  |
| 78  | 4   | E  | 164 | A   | 4  | 250 | F   | A  |
| 79  | 4   | F  | 165 | A   | 5  | 251 | F   | B  |
| 80  | 5   | 0  | 166 | A   | 6  | 252 | F   | C  |
| 81  | 5   | 1  | 167 | A   | 7  | 253 | F   | D  |
| 82  | 5   | 2  | 168 | A   | 8  | 254 | F   | E  |
| 83  | 5   | 3  | 169 | A   | 9  | 255 | F   | F  |
| 84  | 5   | 4  | 170 | A   | A  |     |     |    |
| 85  | 5   | 5  | 171 | A   | B  |     |     |    |

9 INSTALLATION / SAFETY

- a. All applicable codes and standards need to be followed in the installation of this product.
- b. For I/O wiring (discrete), use the following wire type or equivalent: Belden 8441 or equivalent.
- c. For detailed installation information, refer to Chapter Two in the Control Station Hardware Manual (MAN0227). A **handy checklist** is provided that covers panel box layout requirements and minimum clearances.



**Warning:** Consult user documentation.



**Warning:** Electrical Shock Hazard.

**Warning:** To protect the module and associated wiring from load faults, use external fuse (5 A).

**Warning:** Connecting high voltage to any I/O pin may cause high voltage to appear at other I/O pins.

**Warning:** Wiring the line side of the AC source to loads connected to outputs 0 through 15 and the neutral side of the AC source to the output common(s) would create a Negative Logic condition, which may be considered an unsafe practice.

10 TECHNICAL ASSISTANCE

For assistance and manual updates, contact Technical Support at the following locations:

|  |  |
|--|--|
| <p><b>North America:</b><br/>                 Tel: 317 916-4274<br/>                 Fax: 317 639-4279<br/>                 Web: <a href="http://www.hornerautomation.com">www.hornerautomation.com</a><br/>                 Email: <a href="mailto:techsppt@heapg.com">techsppt@heapg.com</a></p> | <p><b>Europe:</b><br/>                 Tel: +353-21-4321266<br/>                 Fax: +353-21-4321826<br/>                 Web: <a href="http://www.hornerautomation.eu">http://www.hornerautomation.eu</a><br/>                 Email: <a href="mailto:technical.support@horner-apg.com">technical.support@horner-apg.com</a></p> |
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